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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,279	02/17/2004	Steven B. O'Donnell	135/31	2037

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EXAMINER

FASTOVSKY, LEONID M

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/781,279

Applicant(s)

O'DONNELL, STEVEN B.

Examiner

Leonid M. Fastovsky

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks.

Brooks discloses a glow plug 10 comprising a body 12 having threaded means 48 for affixing the glow plug to the engine block, the body having an outer shell 12 surrounding an inner cavity 14, the outer shell 12 having a hexagonal portion 50 having six faces and a circumferential groove 95 formed horizontally in the outer shell, and a flat face 96 that make Brooks's glow plug capable of forming a seal with the engine block (col. 3, lines 15-25, Fig. 1). Further, Brooks teaches that the end of the shell 12 is crimped over to form a peripheral lip 46 and is inherently frusto-conical because it has a similar shape as a frust-conical portion 25 of the application, and the upper crimp portion 46 has a cross-section less than the cross-section of the hexagonal portion 50 (col. 3, lines 15-16).

However, Brooks does not disclose that the upper crimped portion is frusto-conical and the hexagonal portion extending across all six faces of the hexagonal portion to the threaded portion of the plug. It would have been obvious to one having ordinary skill in

the art to modify Brooks' hexagonal portion to extend it all the way to the threaded portion of the plug in order to better secure the flat face 96 of the glow plug to the engine block and reduce production costs, and also locate the plug vertically as a matter of design choice.

As for claim 7, it would have been obvious to one having ordinary skill in the art to modify Brooks' crimped portion to make it frusto-conical as taught by the prior art (Fig. 5 of the application) in order to better secure and seal an inner electrode 36 inside the plug.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks in view of Bhat et al.

Brooks discloses substantially the claimed invention, but is silent regarding a size of the hexagonal portion and an inside diameter of the groove. Bhat teaches a glow plug 1 comprising a shell 10 that has a hexagonal portion 11 having threads of 0.25 inches and a root diameter of 0.223 inches. It would have been obvious to one having ordinary skill in the art to modify the invention of Brooks to include an inside groove diameter in the hexagonal portion as taught by Bhat, less than 0.275 in^2 as claimed by Applicant, in order to securely affix the glow plug to an engine block.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

5. Applicant's arguments with respect to claims 1-8 have been considered but are not persuasive. It would have been obvious to one having ordinary skill in the art to modify Brooks' hexagonal portion to extend it all the way to the threaded portion of the plug in order to better secure the flat face 96 of the glow plug to the engine block and reduce production costs, and also locate the plug vertically as a matter of design choice.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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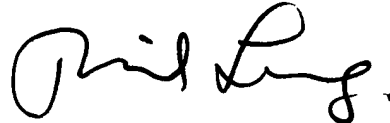
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Leonid M Fastovsky
Examiner
Art Unit 3742

lmf

4/14/06



PHILIP H. LEUNG
PRIMARY EXAMINER
ART UNIT 3742